

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 13-7141

Exam Date: 9/14/2012
And 10/29/2012

1. Current Owner: CLAUDIA B ERICKSON
5598 E HWY 36
PRESTON ID 83263
- And/Or
- BOB L ERICKSON
5598 E HWY 36
PRESTON ID 83263
(208)852-1898
2. Accompanied by: Bob Erickson (permit holder)

- | 3. <u>SOURCE</u> | <u>TRIBUTARY</u> |
|------------------|------------------|
| SPRINGS | MINK CREEK |

B. OVERLAP REVIEW

1. Other water rights with the same place of use: Water from Riverdale Canal Co. and Glencoe Irrigation Co. is also used on irrigation place of use.
2. Other water rights with the same point of diversion: None.

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

SPRINGS	SE1/4NE1/4SE1/4	Sec. 11, Twp 14S, Rge 40E, B.M.	FRANKLIN County	(Domestic spring)
SPRINGS	NW1/4SW1/4	Sec. 12, Twp 14S, Rge 40E, B.M.	FRANKLIN County	(Tile drain system)

Method of Determination: GPS and Site Visit

2.

PLACE OF USE: DOMESTIC (2 homes)

[illegible]

PLACE OF USE: RECREATION (Pond)

Twp Rge Sec	NE				NW				SW				SE				Totals
14S 40E 11	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
													X				

PLACE OF USE: IRRIGATION

Twp Rge Sec	NE				NW				SW				SE				Totals
14S 40E 11	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
													6.0			5.9	11.9
14S 40E 12									1.4	24.2	3.5						29.1

Total Acres: 41

Method of Determination: Site visit and aerial photography.

3. ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☐ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☐ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☐ Photo of Diversion and System Attached

D. FLOW MEASUREMENTS

1. Measurements: Field exam completed in September of a drought year (low snowpack and no summer precipitation). Spring flow was likely at its minimum flow. I measured the total outflow of the pond, then used the physical parameters of the system and the high water marks (flow stains) on the pipes to determine a theoretical maximum flow for the tile drain system and for the total system.

Total measured outflow from pond = 5 gal in 1.7 sec = 176 gal/min = 0.39 cfs

Theoretical flow from tile drain system (based on high water marks on pipe) = 1.16 cfs

Theoretical flow from system (based on high water marks on outflow pipe) = 1.43 cfs

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

See attached calculation sheets (2).

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 41 \text{ acres} \times 3.5 \text{ af/acre} = 143.5 \text{ acre-feet}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.82 \text{ cfs} \times 214 \times 1.9835 = 348.1 \text{ acre-feet}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 143.5 \text{ acre-feet}$$

2. Volume Calculations for Other Uses:

$$\text{Pond} = 0.7 \text{ acres} \times 10 \text{ foot deep (avg)} = 7.0 \text{ acre-feet}$$

$$\text{Domestic} = 2 \text{ homes} \times 0.6 \text{ acre-feet per home} = 1.2 \text{ acre-feet}$$

(Irrigation uses around homes are covered under irrigation portion of the right)

G. NARRATIVE/REMARKS/COMMENTS

Mr. Erickson developed a marshy, spring area arising near Mink Creek. He installed a tile drain system with perforated pipe, draining the spring water from the field primarily in the NWSW of Section 12. The application described two PODs, one in the NWSW of Section 12 (to cover the tile drain system) and one in the NESE of Section 11 (to cover a separate spring used for domestic purposes). Mr. Erickson has a number of stand pipes on the main collection pipeline where he can install a portable pump and irrigate the large field and grassy area around the pond.

Collection pipeline terminates at recreation pond. Pond is 0.7 acres large and approximately 10 feet deep on average. Unused spring water cycles through the pond and is discharged through a drain pipe into Mink Creek. Pond is kept full throughout the winter. Pond is stocked periodically, but fish cannot escape into creek.

A separate domestic spring was also developed under this permit. The domestic spring is delivered by pipeline to two homes and is used for irrigation of lawn and garden around the homes. All irrigation will be covered under the irrigation element in the license. Domestic water is also used at the barn for miscellaneous purposes.

Have conditions of permit approval been met? ☒ Yes** ☐ No

** Permit required a measuring device be installed on system. No measuring device on system. Watermaster for Water District 13N does not want a measuring device on this diversion. See memo attached to this Field Exam Report.

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
DOMESTIC	01/01 to 12/31	0.060 CFS	1.20 AF
RECREATION	01/01 to 12/31		7.00 AF
IRRIGATION	04/01 to 10/31	0.820 CFS	143.50 AF
	<u>Totals:</u>	0.880 CFS	151.70 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

I. AUTHENTICATION

Field Examiner's Name James Cefalo Date Nov 1, 2012

Reviewer _____ Date _____

Tile Drain System

10/30/2012

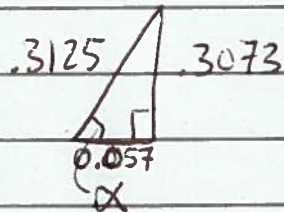
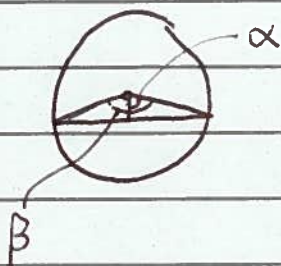
13-7141

Pipe Diameter = $7\frac{1}{2}$ inches

Slope = $\frac{1.5\text{ in.}}{24\text{ in.}} = 0.0625$

Water surface at high flow = $7\frac{3}{8}$ in. (below half full)

Mannings Coefficient (n) = 0.01



$$\sin \alpha = \frac{0.3073}{0.3125}$$

$$\alpha = 79.53^\circ$$

$$\beta = 159.07^\circ$$

$$\text{Total Perimeter} = \pi D = \pi (.625) = 1.963 \text{ ft}$$

$$\text{Wetted Perimeter (P)} = \frac{159.07}{360} (1.963) = 0.867 \text{ ft}$$

$$\text{Total Area of Pipe} = \pi r^2 = \pi (.3125)^2 = 0.3068 \text{ ft}^2$$

$$\begin{aligned} \text{Area of Water Flow (A)} &= \frac{159.07}{360} (.3068) - (.057)(.3073) \\ &= .1356 - .0175 = 0.118 \text{ ft}^2 \end{aligned}$$

$$\text{Hydraulic Radius (R}_h\text{)} = \frac{A}{P} = \frac{.118}{.867} = 0.1361$$

$$Q = \frac{1.49}{n} (A) (R_h)^{2/3} \sqrt{S} = \frac{1.49}{.01} (.118) (.1361)^{2/3} \sqrt{.0625}$$

$$Q = 1.16 \text{ cfs}$$

Outflow From Pond

10/30/2012

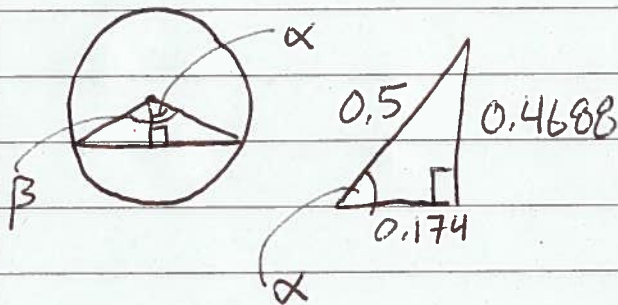
13-7141

Pipe Diameter = 12"

Slope = 0.018 (derived using measured flow and pipe parameters)

Water surface at high flow = 11 1/4"

Mannings coefficient (n) = 0.01



$$\sin \alpha = \frac{0.4688}{0.5}$$

$$\alpha = 69.95^\circ$$

$$\beta = 139.30^\circ$$

$$\text{Total Perimeter} = \pi D = \pi (1) = 3.1416$$

$$(P) \text{ Wetted Perimeter} = \frac{139.3}{360} (3.1416) = 1.216 \text{ ft}$$

$$\text{Total Area of Pipe} = \pi r^2 = \pi (.5)^2 = 0.7854 \text{ ft}^2$$

$$\begin{aligned} (A) \text{ Area of Water Flow} &= \frac{139.3}{360} (.7854) - (.174)(.4688) \\ &= .3039 - .0816 = 0.222 \text{ ft}^2 \end{aligned}$$

$$\text{Hydraulic Radius } (R_h) = \frac{A}{P} = \frac{0.222}{1.216} = 0.183$$

$$Q = \frac{1.49}{n} (A) (R_h)^{2/3} \sqrt{s} = \frac{1.49}{.01} (.222) (.183)^{2/3} \sqrt{0.018}$$

$$Q = 1.43 \text{ cfs}$$



7.5 in. Pipe from tile drain system.

6 in Pipe from domestic spring.





Spring box for domestic spring



Pipe from tile drain system



Irrigated area.



Transfer box on tile drain system.



Outflow from pond into Mink Creek

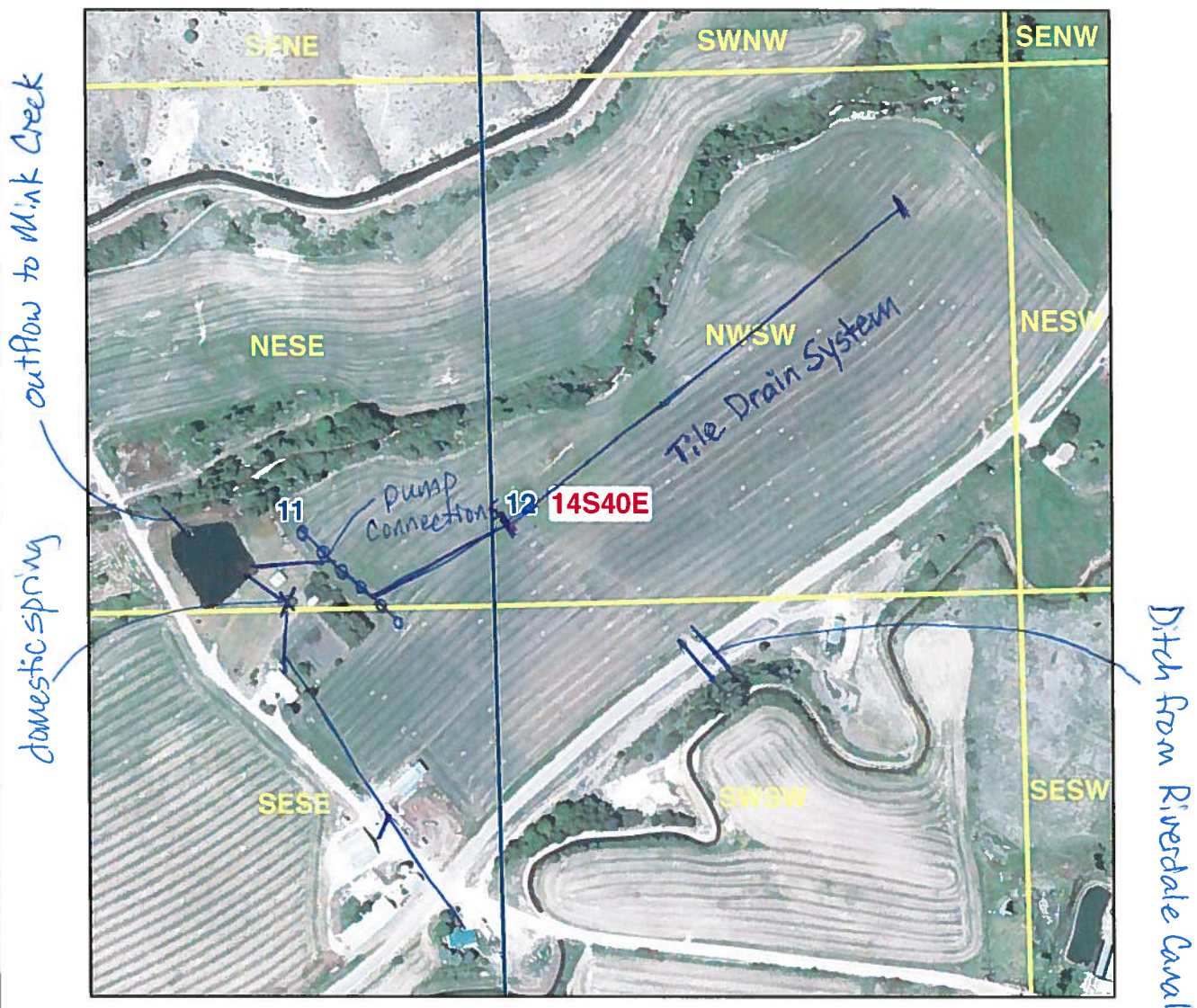


Outflow from pond into pipe to Mink Creek.
(located at NW corner of the pond)

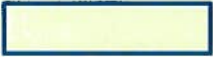
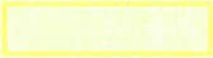


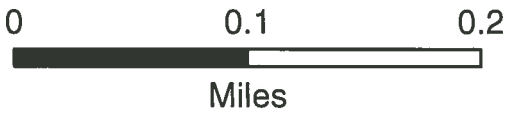
Connection for portable pump — multiple on property.

13-7141 (Erickson)

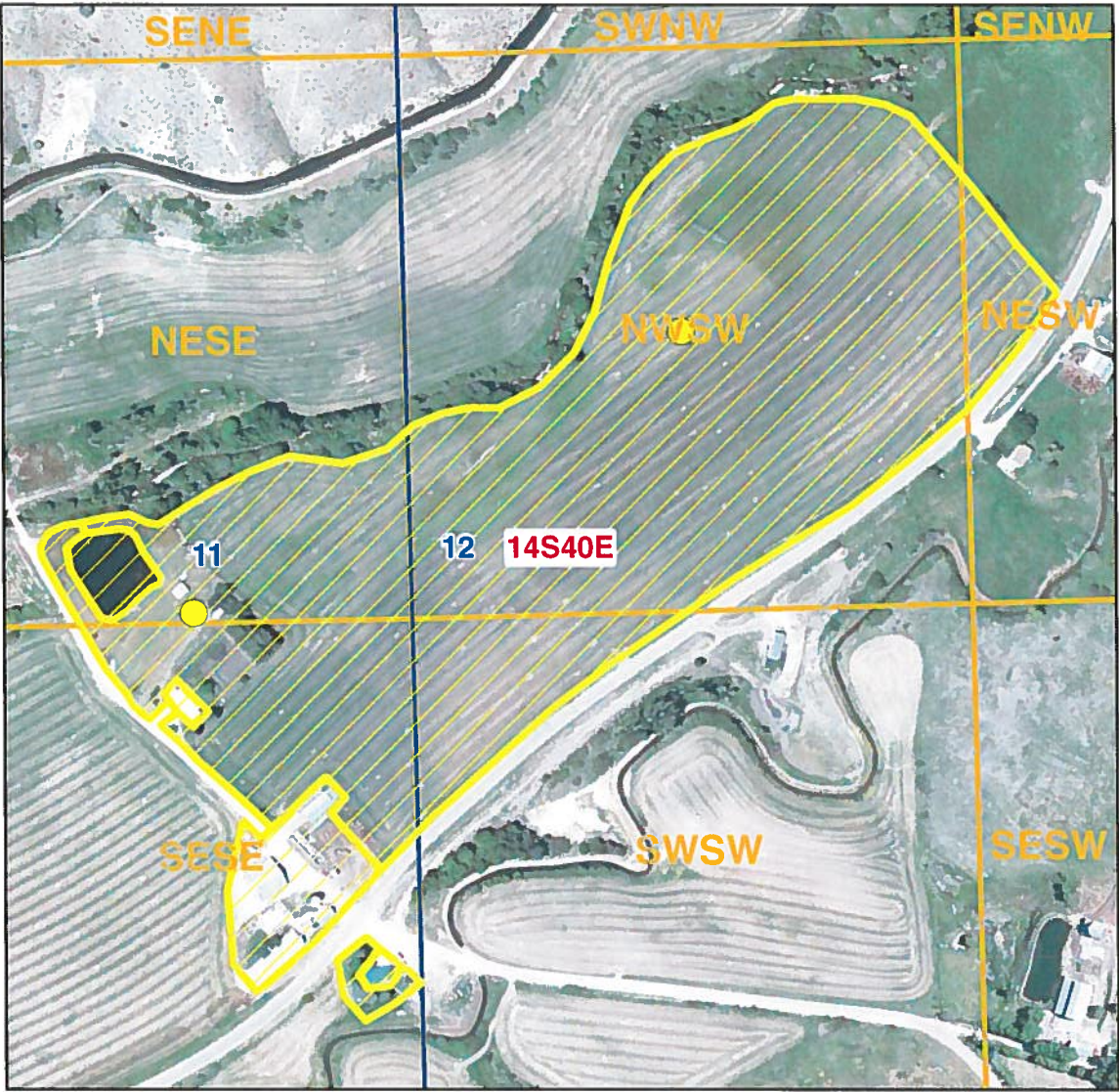


Legend

	Township/Range
	Sections
	QQ

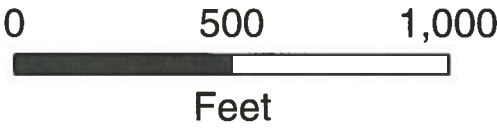


13-7141 (Erickson)



Legend

- Water Right POD
- Water Right POU
- Township/Range
- Sections
- QQ



2010 Aerial Photography

MEMO

TO: Water Rights File
FROM: James Cefalo JRC
DATE: October 3, 2012
RE: Measuring Device Condition on Permit 13-7141

I conducted a beneficial use field exam of Permit 13-7141, in preparation for licensing, on September 14, 2012. The field exam confirmed the extent of beneficial use developed under the permit. Permit 13-7141 included the following language: "A measuring device of a type approved by this Department shall be permanently installed and maintained as part of the diverting works." No measuring device was found on the system during the field exam.

Water right 13-7141 is located within Water District 13N which covers Mink Creek and its tributaries. Mink Creek is not regulated against water rights on the main stem of the Bear River. It has historically been regulated as a separate, independent water district. The springs developed under Permit 13-7141 ("Erickson Springs") are now, and to some degree have always been, tributary to Mink Creek. The measuring device condition was likely added to the permit because it was for a surface diversion within an active water district.

I spoke with the watermaster for Water District 13N, Dennis Clark, about Permit 13-7141 and the need for a measuring device. Mr. Clark said that a measuring device is not needed on the diversion at this time. He could not conceive of a scenario where the Erickson Springs diversion would even need to be measured or curtailed. Although the diversion is within the district boundaries, it is not regulated or assessed by Water District 13N at this time.

There are a number of decreed senior water rights on Mink Creek, all located upstream of Permit 13-7141. These rights were described in the 1920 Bear River Decree. The priority dates for these decreed rights range from the 1882 to 1901. During the summer, the flow in Mink Creek is not sufficient to satisfy all of the senior, decreed rights. Twin Lakes Canal Company ("TLCC") has the most junior of the decreed rights. TLCC's diversion dam is also located the farthest downstream of the decreed rights. In most years, TLCC has the authority under its decreed water rights to divert all of the water available at its headgate. The flow past the TLCC headgate in the summer is minimal. The TLCC diversion dam is located approximately 1 mile upstream of the Erickson springs. Because of the upstream location of the senior decreed rights on Mink Creek, curtailment of water right 13-7141 would not provide any water to senior decreed water rights.

There are only two water rights from Mink Creek downstream of Erickson Springs. Both of these rights are statutory claims, meaning they have not been verified by IDWR or an adjudication court. Water right 13-4225, in the name of Hugh Hansen, carries a 1922 priority date and authorizes the diversion of 0.24 cfs and the irrigation of 12 acres. Water right 13-

4217, in the name of Barbara and Gordon Jensen, carries a priority date of 1925 and authorizes the diversion of 0.18 cfs and the irrigation of 7 acres. Both of these water rights are located approximately two miles downstream of Erickson Springs.

Pursuant to Idaho Code § 42-607, statutory claims are the first water rights curtailed in a time of scarcity. Therefore, at the present time, there are no downstream water rights that could require 13-7141 to be curtailed. Even if the downstream water rights are eventually adjudicated, the natural gains in Mink Creek downstream of Erickson Springs are significant enough that the downstream rights, if valid, would be fully satisfied. Erickson Springs may be the largest single inflow to Mink Creek below the TLCC diversion dam. However, there are many other springs that add water to Mink Creek in the area.

Given the location of the points of diversion identified in water right 13-7141, a measuring device would not assist in the distribution of water among water users and is not warranted at this time. A license should be issued for right 13-7141 without a measuring device requirement.